

Chapter 7 Test Study Guide

Name Solutions.

Segments, Lines, Rays, and Planes

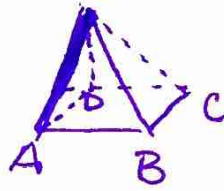
1. Draw a figure that has at least one pair of parallel line segments, line segments that intersect, and at least one pair of lines that are skew. Label your diagram and then identify each of the following.

A: Parallel line segments:

$$\overline{AB} \parallel \overline{DC}$$

B: Intersecting line segments:

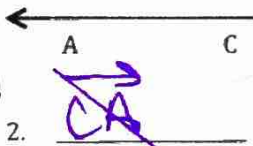
$$\overline{AE} \text{ intersects } \overline{EC}$$



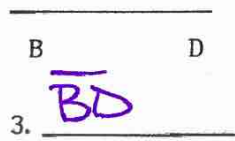
C: Line segments that are skew:

\overline{AB} and \overline{ED} are skew

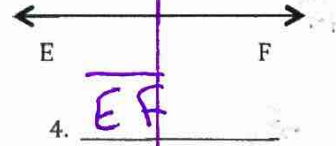
Label the following lines, segments, and rays appropriately.



2.

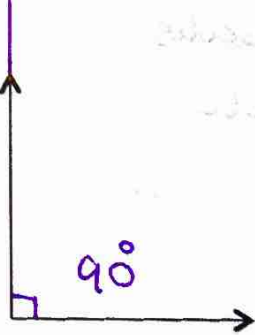
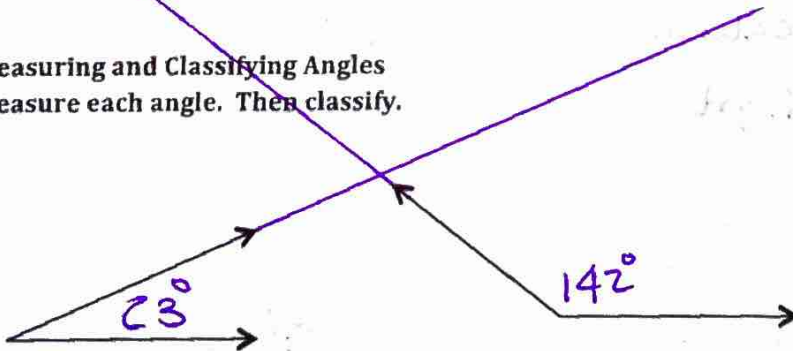


3.



4.

Measuring and Classifying Angles
Measure each angle. Then classify.



5. Acute

6. Obtuse

7. Right

Find the measures of the complement of each angle.

9. $m\angle A = 21^\circ$ 69°
 $21^\circ + x^\circ = 90^\circ$ $x^\circ = 90 - 21$

10. $m\angle L = 86^\circ$ 4°
 $86^\circ + y^\circ = 90^\circ$ so $y^\circ = 90 - 86$

Find the measures of the supplement of each angle.

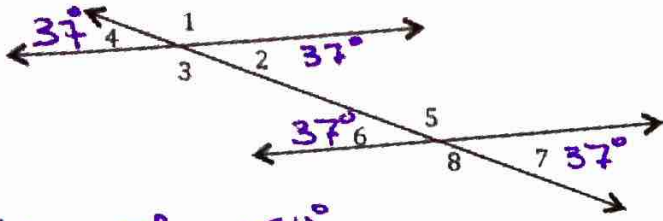
11. $m\angle C = 122^\circ$ 58°

12. $m\angle E = 11^\circ$ 169°

$$\begin{array}{r} 122 + a^\circ = 180^\circ \\ -122 \quad -122 \\ \hline a^\circ = 58^\circ \end{array}$$

$$\begin{array}{r} 11^\circ + b^\circ = 180^\circ \\ -11^\circ \quad -11^\circ \\ \hline b^\circ = 169^\circ \end{array}$$

Find the measures of $\angle 1, \angle 2,$ and $\angle 3, \angle 5, \angle 7, \angle 8$ if the measure of $\angle 4$ is 37° and the measure of $\angle 6$ is 37°



13. $m\angle 1 = 143^\circ$ ($\angle 4$ and $\angle 1$ are supplementary)
14. $m\angle 2 = 37^\circ$ (Vertical angles are congruent)
15. $m\angle 3 = 143^\circ$ ($\angle 1$ and $\angle 3$ are vert. cal angles)
16. $m\angle 5 = 143^\circ$ ($\angle 5$ and $\angle 6$ are supplementary)
17. $m\angle 7 = 37^\circ$ (Vertical angles are congruent)
18. $m\angle 8 = 143^\circ$ ($\angle 5$ and $\angle 8$ are vert. cal angles)

$$\begin{array}{r} \angle 1 + 37^\circ = 180^\circ \\ - 37^\circ \quad - 37^\circ \\ \hline \angle 1 = 143^\circ \end{array}$$

19. Name 3 pairs of adjacent angles.

- $\angle 4$ and $\angle 1$
- $\angle 1$ and $\angle 2$
- $\angle 2$ and $\angle 3$

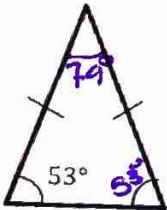
20. Name 3 pairs of vertical angles.

- $\angle 1$ and $\angle 3$
- $\angle 2$ and $\angle 4$
- $\angle 5$ and $\angle 8$
- $\angle 6$ and $\angle 7$

***In general know ALL angle pair relationships and how you can use them

Triangles: Classify each triangle based on its sides and angles.

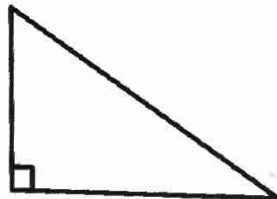
21.



Isosceles

Acute

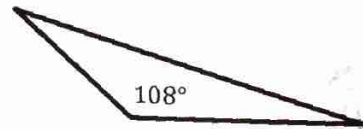
22.



Scalene

Right

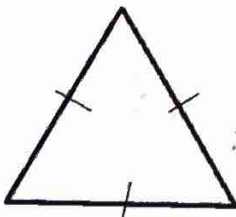
23.



Scalene

obtuse

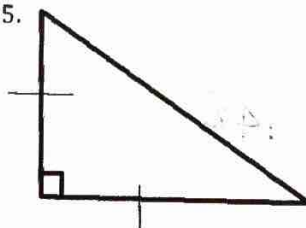
24.



Equilateral

Acute

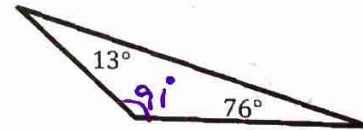
25.



Isosceles

Right

26.

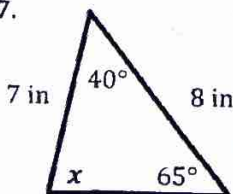


Scalene

obtuse

Find the value of x in the triangle.

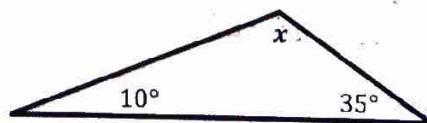
27.



$x = 75^\circ$

$$\begin{array}{r} x + 40 + 65 = 180 \\ x + 105 = 180 \\ - 105 \quad - 105 \\ \hline x = 75 \end{array}$$

28:



$x = 135^\circ$

$$\begin{array}{r} 10 + 35 + x = 180 \\ 45 + x = 180 \\ - 45 \quad - 45 \\ \hline x = 135 \end{array}$$

*29. Look at Question #23. If that triangle was isosceles, what would the other two angles equal?



then

$$\begin{aligned} 2x + 108 &= 180 \\ -108 &-108 \\ \hline 2x &= 72 \\ \frac{2x}{2} &= \frac{72}{2} \end{aligned}$$

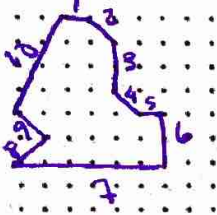
$x = 36$

Each of the remaining angles would be 36°

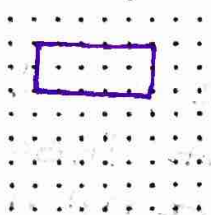
Polygons and Quadrilaterals

Draw each polygon.

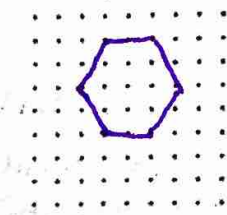
30. Decagon



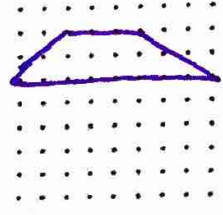
31. Rectangle



32. Hexagon



33. Trapezoid



Classify each Quadrilateral based on the information given. State how you know.

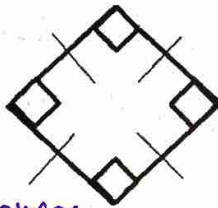
34.



Trapezoid

1 pair of parallel sides

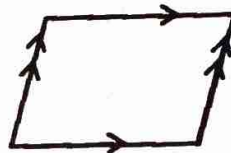
35.



square

4 congruent sides
4 Right angles

36.



Parallelogram

2 pair of parallel sides.

*37. How do you know the quadrilateral in Question 36 is NOT a rectangle?

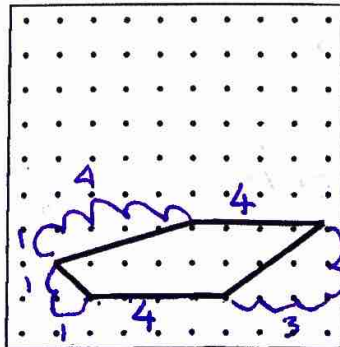
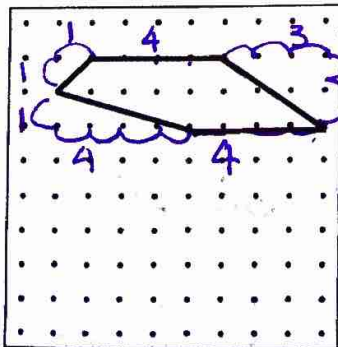
we don't know the measure of the angles. A rectangle must have 4 Right angles.

*38. What is the only regular triangle? Why?

Equilateral because the sides are all congruent and the angles are congruent

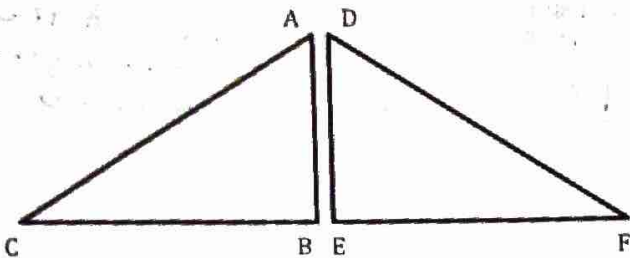
all congruent

39. Identify whether the figures are congruent.



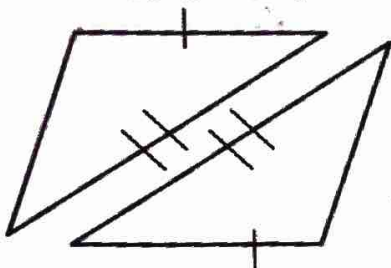
yes they are congruent. The corresponding sides are all congruent.

40. Fill in the chart with the correct information if $\triangle ABC \cong \triangle DEF$



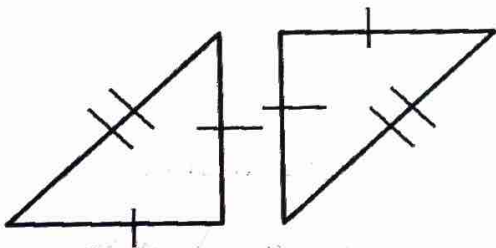
Corresponding Angles	Corresponding Sides
$\angle A \cong \angle D$	$\overline{BC} \cong \overline{EF}$
$\angle B \cong \angle E$	$\overline{AB} \cong \overline{DE}$
$\angle C \cong \angle F$	$\overline{AC} \cong \overline{DF}$

41. Are the following figures congruent or not congruent? Explain.



No. only 2 pair of corresponding sides are congruent. There is one pair of sides that are not marked as congruent. So we must assume the triangles are not congruent.

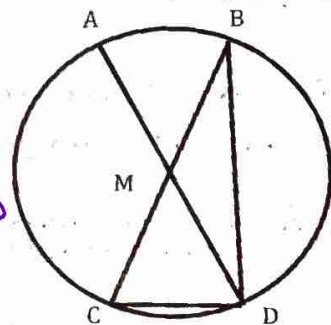
42. Are the following figures congruent or not congruent? Explain.



yes. There are 3 pair of congruent corresponding sides.

Circles

Directions: Name each of the following shown for circle M.



43. List all diameters

\overline{AD} \overline{CB}

44. List 3 central angles

$\angle AMB$, $\angle BMD$, $\angle AMC$, $\angle AMD$, $\angle BMC$

45. List all chords

\overline{CD} , \overline{AD} , \overline{BC} , \overline{BD}

46. List 2 semicircles

\widehat{CAB} \widehat{ABD} \widehat{BDC} \widehat{DCA}

47. List 2 arcs shorter than a semicircle

\widehat{AC} \widehat{AB} \widehat{BD} \widehat{DC}

48. List 2 radii

\overline{AM} \overline{BM} \overline{DM}
 \overline{CM}

49. List 2 arcs larger than a semicircle

\widehat{CAD} \widehat{ABC} \widehat{BCA}
 \widehat{DAB}

Circle Graphs

Directions: Use the table below to create a circle graph of the information.

Time Students Go to Sleep	Number of Students	Central Angle Measure
Before 9 P.M.	2	a. 36°
9 P.M. to 10 P.M.	3	b. 54°
10 P.M. to 11 P.M.	10	c. 180°
After 11 P.M.	5	d.
Total:	20	

50. Find the central angle measures for each section of the circle graph. Fill in the chart.

$$\frac{2}{20} = \frac{a}{360}$$

$$2 \cdot 360 = 20a$$

$$720 = 20a$$

$$36 = a$$

$$\frac{3}{20} = \frac{b}{360}$$

$$3 \cdot 360 = 20b$$

$$1080 = 20b$$

$$54 = b$$

$$\frac{10}{20} = \frac{c}{360}$$

$$3600 = 20c$$

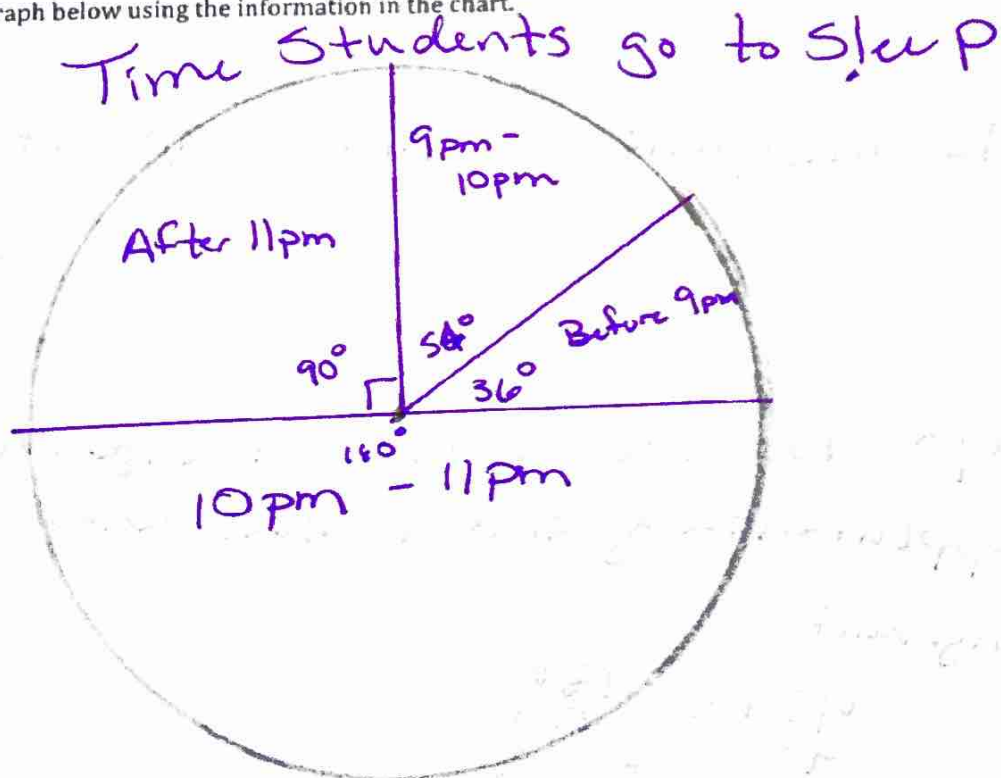
$$180 = c$$

$$\frac{5}{20} = \frac{d}{360}$$

$$5 \cdot 360 = 20d$$

$$1800 = 20d \quad 90 = d$$

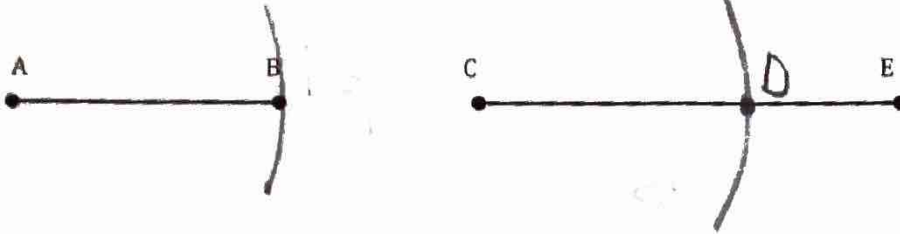
51. Create a circle graph below using the information in the chart.



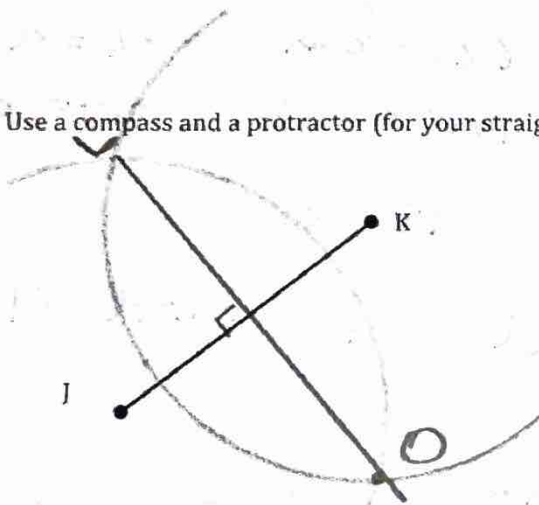
Constructions

Directions: Construct congruent segments and perpendicular bisectors using only a compass and your protractor as a straight edge.

19. Use a compass and a protractor (for your straight edge) to make $\overline{CD} \cong \overline{AB}$.



20. Use a compass and a protractor (for your straight edge) to make a perpendicular bisector to \overline{JK} .



21. What is one thing a perpendicular bisector helps us find?

The midpoint of a line segment

22. When a perpendicular bisector intersects the original line, what should the measurement of all the angles be? Explain why.

90° because adjacent angles will be supplementary and vertical angles will be congruent.

$$\begin{array}{r} 90 + x = 180 \\ -90 \quad -90 \\ \hline x = 90^\circ \end{array}$$